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" Welcome Shelter Near Trail's End "

× FEDERAL-STATE COOPERATIVE
SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

MISSOURI and ARKANSAS DRAINAGE BASINS

FEBRUARY 1, 1947

By

Division of Irrigation, Soil Conservation Service
United States Department of Agriculture
and
Colorado Agricultural Experiment Station

Data included in this report were obtained by the agencies named above in cooperation with the U. S. Forest Service, National Park Service, State Engineers of Colorado, Wyoming and New Mexico and other Federal, State and local organizations.

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Report Prepared by
Division of Irrigation
Soil Conservation Service
and
Colorado Agricultural Experiment Station
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WATER SUPPLY OUTLOOK

MISSOURI-ARKANSAS DRAINAGE BASINS

February 1, 1947

The water supply situation in Montana, Missouri River and tributaries, is favorable. At places the snow cover is the greatest in past years. Throughout Wyoming the outlook is favorable for all the principal streams of the state. Snow on the watershed of the Big Horn is about 30 percent above normal. On the North Platte watershed the average water content is about 10 percent above the average and about 10 percent less than a year ago. Storage in the principal reservoirs on the North Platte, Wyoming, is 20 percent less than this time last year. Agricultural conditions throughout the state are satisfactory. Throughout the entire South Platte Drainage area the over-all prospects for the coming summer's irrigation supply is quite favorable at this time. Reservoir storage is generally less than a year ago. For the Arkansas Valley the present outlook is fairly good. Average snow cover is less than a year ago and approximately equal to the past 12-year average.

Missouri River and Tributaries in Montana

Snow cover in some places along the Continental Divide now is the greatest since 1935 and throughout this region the snow water storage is well above the average. Increase in snow depth during January was about average. Snow melt during late January brought stream flow to above normal. Reservoir storage is satisfactory. Fort Peck has 13,530,000 acre-feet now stored. Present outlook for water supply this season in Montana is quite favorable.

Wyoming

Shoshone: Storage in the Shoshone Reservoir is above 10-year average. Snow on the headwaters is about 4 percent above last year at this time and 20 percent above normal. Range and moisture conditions in irrigated area are generally below normal. Water supply outlook now is favorable.

Big Horn: Snow cover on the Big Horn watershed now averages about 20 percent more than that of February first last year and 30 percent above the normal. Soil and crop conditions are generally fair to good. Reservoir storage is satisfactory. The outlook now is very favorable because of good snow pack in the high mountain country.

Sweetwater: Prospects for the coming season's runoff are satisfactory. Snow cover on the watershed is identical with that of a year ago.

Cheyenne: Outlook is reasonably good. Last year at this time the average water content of the snow in the Black Hills was 1.9 inches, it is now 2.7, which equals the average for the past four years. The filling in Belle Fourche Reservoir is now about three-quarters of capacity. Range and crop conditions are good.

North Platte: On the watershed the snow cover is about 10 percent less than a year ago but is 9 percent more than the past twelve-year average. Storage in the four principal reservoirs on this river in Wyoming now aggregates 860,000 acre-feet as compared with 1,008,000 a year ago. The runoff in this stream can be expected to be normal this season and a substantial increase in the storage will be realized. Generally, stream flow is about normal both in Wyoming and Nebraska. Soil moisture is only fair in Wyoming and in the Mitchell and Bridgeport areas in Nebraska. Range and crop conditions are improved in the North Platte valley east of Scottsbluff. Storage in the Kingsley and Sutherland reservoirs equals about 1,160,000 acre-feet which is slightly more than it was last year at this time.

Laramie: On the headwaters of this stream and its tributaries the water content averages 7.3 inches, last year it was 7.6. The normal is 6.4 inches. The prospects are now reasonably good for a normal runoff this coming irrigation season. Soil moisture and crop conditions through the Laramie River valley are satisfactory at this time. Stream flow is normal. Storage in the Wheatland reservoirs is about 50 percent of that a year ago.

South Platte River Basin

Cache la Poudre: Snow on the watershed of the main Poudre and its tributaries is slightly better now than a year ago. On Cameron Pass the water content is 14.2 inches, which is the greatest measured on February first during the past 40 years. The present outlook for the coming season's irrigation supply is very favorable. Reservoir storage is now about the same as it was a year ago. Stream flow is somewhat less than normal, the available supply is now being stored. Soil moisture and crop conditions are generally good throughout the valley.

Big Thompson: The general prospect for the water supply this coming season is now fairly good. Snow on the watershed is 10 percent better than last year and 25 percent more than the past 7-year average. The outlook, however, is somewhat dulled because the present reservoir storage is only 30 percent of that a year ago. Practically no carry-over is in storage from last year's irrigation season. Soil moisture in the agricultural area of the valley is fair. Crop and range conditions are good.

St. Vrain: Water content of the snow on the watershed of this stream and its tributaries is 8.4 inches, last year it was 7.0. The 11-year average is 6.3 inches. Prospects are now favorable for next summer's irrigation supply. Reservoir storage is now less than a year ago but filling continues with stream flow about normal. Crop, range and soil moisture conditions are generally satisfactory.

Boulder Creek: There is normal snow cover on the headwaters of this stream and its tributaries. The prospects are now favorable for an adequate irrigation supply this coming season. Reservoir storage is now about 20 percent less than a year ago. Stream flow is normal.

Clear Creek: The snow cover on this drainage is better than the average for the past 8 years. The water content is 8.8 inches or 13 percent above normal for this time of year. Reservoir storage is 10 percent less than it was a year ago. Runoff prospects are now fairly promising. The agricultural conditions throughout the irrigated area served by Clear Creek are now satisfactory.

South Platte Above Denver: Storage in the mountain reservoirs, principally Denver's municipal water supply, is about 167,000 acre-feet. Last year at this time it was 193,000. The water content of the snow on the watershed now averages about 4 inches, a year ago it was 5. Normal is 3.2. The outlook for the coming irrigation season is fairly good.

For the entire South Platte drainage the over-all prospect for the coming summer's irrigation supply is at this time quite favorable. Throughout the lower valley, Fort Lupton east to the State line the present agricultural conditions are good. Reservoir storage in this section of the valley is now satisfactory. The principal reservoirs now have in storage 230,000 acre-feet, last year 250,000. Stream flow is normal and storage continues. Because of the average or better snow conditions in the mountains it is expected that most of the reservoirs will reach capacity filling during June.

Arkansas River

At this time the average water content of the snow on the headwaters of the Arkansas and its tributaries is 5.4 inches. Last year at this time it was 6.3. The 12-year average is 5.7 inches. Reservoir storage, mountain and plain, now approximate 210,000 acre-feet. Last year at this time the total was about 304,000. Stream flow is near normal and reservoir storage is continuing. Generally throughout the valley the agricultural conditions are very satisfactory at this time. The present outlook for next summer's irrigation supply is fairly good. The snow cover in the mountain areas will no doubt become improved during the remainder of this winter. The present depth on Monarch Pass is 3 feet but the snow density is rather low.

STATUS OF RESERVOIR STORAGE, MISSOURI-ARKANSAS BASIN, February 1947

BASIN AND STREAM	RESERVOIR	USABLE CAPACITY (Thous. A.F.)	THOUSANDS ACRE FEET IN STORAGE About February 1, 1947				
			1947	1946	1945	1944	10-year Avg. 1936-45
MISSOURI RIVER							
South Platte River	Eleven Mile	81.9	81.9	81.9	81.9	81.9	72.7
"	Cheeseman	79.0	49.5	74.5	60.1	60.2	53.6
"	Marston	18.9	14.6	15.7	15.3	16.6	15.3
"	Barr Lake	32.2	25.4	25.5	17.4	17.2	13.6
"	Milton	24.4	18.1	14.2	6.8	4.8	5.4
"	Standley	18.5	7.0	13.5	7.7	5.7	8.8
"	Marshall	10.3	2.0	4.4	1.3	0.7	2.1
"	Antero	33.0	20.0	20.0	19.4	19.7	7.4
"	Horse Creek	20.6	12.5	16.0	4.3	1.9	3.7
"	Riverside	57.5	53.9	49.0	29.1	35.0	32.7
"	Empire	37.7	27.5	21.8	17.2	17.7	17.2
"	Jackson Lake	35.4	26.5	27.3	26.6	29.3	27.7
"	Prewitt	32.8	24.5	28.6	12.5	12.7	13.9
"	Point of Rocks	70.0	44.2	58.8	39.8	40.8	37.8
"	Julesburg	28.2	20.7	20.2	20.5	20.7	20.4
"	Barker Meadow	11.7	0	3.1	4.5	6.6	5.1
Boulder Creek	Union	12.7	5.5	9.2	5.5	6.5	5.5
St. Vrain River	Lake Loveland	14.3	0	8.0	3.5	4.4	3.8
Big Thompson River	Boyd Lake	44.0	4.4	24.4	26.0	26.5	11.8
"	Lone Tree	9.2	7.6	7.2	2.3	2.0	4.9
"	Mariano	5.4	0.7	6.9	0.7	0.4	1.6
"	Windsor	18.6	7.7	10.4	4.2	12.0	7.4
Poudre River	Cache la Poudre	9.5	5.2	8.2	2.6	6.2	5.2
"	Fossil Creek	11.6	7.1	8.1	1.6	5.9	5.3
"	Terry Lake	8.2	4.1	4.0	3.2	4.1	4.0
"	Halligan	6.4	3.0	0.0	1.3	0.0	2.2
"	Chamber's Lake	8.8	2.4	1.8	3.2	1.9	2.4
"	Cobb Lake	34.3	0.4	4.6	8.7	8.9	3.8
"	Black Hollow	8.0	4.8	4.5	2.2	4.9	2.6

RESERVOIR STORAGE, Cont.

BASIN AND STREAM	RESERVOIR	USABLE CAPACITY (Thous. A F.)	THOUSANDS ACRE FEET IN STORAGE ABOUT FEBRUARY 1, 1947					10-year Avg.* 1936-45
			1947	1946	1945	1944	1943	
MISSOURI RIVER								
Missouri River	Canon Ferry	37.8	32.9	34.4	32.5	35.4	27.1	
"	Hauser Lake	52.7	52.1	51.7	50.6	54.6	36.3	
"	Holter	73.6	58.0	68.0	77.4	64.3	47.6	
"	Smith River	10.7	--	--	6.4	7.8	5.9	
"	Gibson	105.0	56.7	--	54.5	59.9	47.2	
"	Willow Creek	32.4	12.9	--	21.1	16.8	9.5	
"	Pishkun	32.0	22.9	--	17.5	18.0	11.5	
Marias River	Four Horns	20.0	--	5.5	5.3	7.5	7.9	
"	Birch Creek	30.0	--	18.9	20.6	22.4	13.7	
"	Lake Francis	112.0	100.4	95.4	98.3	105.3	49.6	
Musselshell River	Durand	7.0	6.4	5.2	5.8	4.5	3.9	
"	Deadmans Basin	52.5	47.0	--	47.2	48.0	43.2	
"	Martindale	23.0	9.0	9.6	11.4	10.0	8.5	
Yellowstone River	Cooney	27.5	--	4.0	9.0	6.5	12.0	
Tongue River	Tongue River	73.9	2.6	10.5	6.2	9.2	7.0	
Milk River	Fresno	127.2	53.8	51.2	39.7	74.1	39.7	
"	Nelson	66.8	27.4	29.9	39.0	43.8	30.0	
St. Marys River	Sherburne	66.0	20.9	18.3	17.6	9.9	11.7	
Missouri River	Fort Peck	19000.0	13530.0	12180.0	10444.0	9423.0	5477.9	

*Some for shorter periods.

RESERVOIR STORAGE, Cont.

BASIN AND STREAM	RESERVOIR	USABLE CAPACITY (Thous. A.F.)	THOUSANDS ACRE FEET IN STORAGE About February 1, 1947				10-year Avg. 1936-45*
			1947	1946	1945	1944	
North Platte River	Pathfinder	1070.0	353.0	297.7	210.1	205.6	152.3
" "	Guernsey	72.7	42.2	42.6	38.5	30.8	30.4
" "	Seminole	1020.0	380.0	595.3	142.3	221.1	137.7
" "	Alcova	165.8	83.3	72.9	16.5	32.6	44.8
Laramie River	Wheatland	70.4	21.8	42.8	3.3	28.7	16.4
North Platte River	Lake Alice	13.8	0	0	0	0	0.2
North Platte River	Minature	60.8	19.2	32.7	19.8	11.8	19.4
" "	Kingsley-Sutherland	2180.0	1164.3	1115.3	747.0	675.0	661.5
Wind River	Bull Lake	155.0	83.4	69.8	58.2	85.1	57.9
" "	Pilot Butte	30.0	9.3	17.1	16.0	24.0	16.3
Shoshone River	Shoshone	456.6	322.9	374.2	306.4	348.1	277.4
Snake River	Jackson Lake	847.0	528.6	663.9	381.8	673.6	378.4
Cheyenne River	Belle Fourche	198.1	140.6	123.8	118.9	95.3	66.1
Jefferson River	Ruby	39.0	25.9	33.0	25.5	25.1	25.4
Madison River	Hebgen	345.0	272.5	240.6	233.3	243.6	230.5
" "	Madison	41.0	30.6	36.6	34.6	37.1	28.5
Gallatin River	Mystic Lake	20.8	13.2	13.6	13.0	11.8	8.7
ARKANSAS RIVER							
Arkansas River	Twin Lakes	57.9	20.6	39.7	15.9	28.6	22.8
" "	Sugar Loaf	17.4	7.5	12.6	6.4		7.4
" "	Clear Creek	11.4	3.7	8.6	7.8	1.9	3.5
" "	Meredith	41.9	26.5	26.2	38.1	15.3	12.6
" "	Horse Creek	26.9	17.4	16.0	11.2	0.0	7.8
" "	Adobe Creek	61.6	28.4	46.6	32.9	24.7	18.1
" "	Cucharas	40.0	2.2	5.1	11.5	0.1	7.9
" "	Two Buttes	40.9	--	0.4	1.0	0.0	14.3
" "	John Martin	655.0	46.9	40.6	36.9	12.5	
" "	Great Plains	150.0	56.0	102.8	106.5	9.2	16.5
Purgatoire River	Model**	15.0	2.1	3.2	2.7	2.3	4.3

*Some for shorter periods.

**Resurveyed in 1946

SUMMARY OF FEBRUARY 1 SNOW SURVEYS AND COMPARISON OF DATA

WITH THAT OF PREVIOUS YEARS BY WATERSHEDS

MISSOURI-ARKANSAS DRAINAGE BASINS

WATERSHEDS	Snow Depth		Water Content		Number Courses in Average	Snow Density		1947 Water Content in Percent of	
	Twelve Year Avg.*	1946	1947	Twelve Year Avg.*		1946	1947	Twelve Year Avg.*	1946
	In.	In.	In.	In.		Percent	Percent	Percent	Percent
MISSOURI RIVER	In.	In.	In.	In.		Percent	Percent		
Jefferson River	26.8	33.8	6.6	7.7	4	25	23	155	133
Madison River	44.1	53.0	12.0	15.6	6	27	29	145	111
Gallatin River	27.8	35.2	6.4	8.3	3	23	24	125	97
Yellowstone River	26.6	33.9	6.0	7.4	2	23	22	137	110
Missouri River**	22.0	24.8	5.3	5.6	4	24	23	174	164
Marias River	36.0	49.6	10.5	12.8	1	29	26	193	158
Shoshone River	42.9	47.0	11.7	13.6	2	27	29	120	103
Bighorn River	32.6	34.2	7.9	8.5	8	24	25	128	119
Cheyenne River	16.8	12.8	2.8	1.9	3	17	15	96	142
North Platte River	41.8	42.8	9.9	12.0	10	24	28	109	90
Sweetwater River	32.3	34.6	7.5	9.9	2	23	29	133	101
Laramie River	25.6	30.2	6.4	7.6	8	25	25	114	96
South Platte River***	18.2	23.8	3.2	5.0	3	18	21	115	74
Crow Creek	13.1	7.3	2.6	1.2	1	20	17	100	216
Poudre River	26.3	30.4	6.3	7.4	6	24	24	126	107
Big Thompson River	36.0	38.0	8.8	9.9	2	24	26	122	108
St. Vrain River	28.0	34.0	6.3	7.0	1	23	21	133	120
Boulder Creek	22.0	29.8	6.0	9.4	2	27	31	113	73
Clear Creek	34.0	43.2	7.8	11.2	2	23	26	113	78
ARKANSAS RIVER	26.6	26.6	5.7	6.3	9	21	24	95	86

*Some for shorter periods

**Between Helena and Great Falls

***Above Denver, Colo.

1-23

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SNOW SURVEYS AND IRRIGATION WATER FORECASTS
FOR MISSOURI AND ARKANSAS RIVERS
February 1, 1947

P R E C I P I T A T I O N D A T A

WATERSHED	STATE	Precipitation October 1 to January 31	Departure from Normal	Precipitation January	Departure from normal
		Inches	Inches	Inches	Inches
Missouri	East. Mont.	3.33	+0.87	0.33	-0.19
Missouri	Cent. Mont.	4.53	+1.40	0.37	-0.30
Missouri	North Wyo.	6.75	+1.24	0.95	-0.52
North Platte	Wyoming	3.81	+0.46	0.90	+0.12
South Platte	Colorado	6.28	+3.56	0.67	-0.09
Arkansas	Colorado	5.55	+1.97	0.64	-0.06

Accumulated precipitation since October 1, over the watersheds of the Missouri and Arkansas Rivers in Montana, Wyoming and Colorado is above normal. January precipitation was below normal except over the North Platte drainage in Wyoming.

MISSOURI-ARKANSAS RIVERS SNOW SURVEYS, February 1, 1947

DRAINAGE BASIN and SNOW COURSE	LOCATION			SNOW COURSE MEASUREMENTS							
	No. and State	Sec.	Twp. or Lat.	Range or Long.	Elev.	Date of Survey	Snow Depth (Inches)	Water Content (Inches)			Past Record Av. Water Content (Inches)
								1947	1946	1945	
						MISSOURI RIVER		In.	In.	In.	
JEFFERSON RIVER											
Camp Creek*	6 Ida.	21	13N	36E	6800	1/31	40.0	9.3	7.0	4.0	5.7
Pirnic Grounds	Mont.	22	5N	6W	6500	1/29	17.1	3.1	2.8	1.1	2.3
Gibbons Pass	10 "	4	2S	19W	7100	2/3	77.0	23.5	18.1	--	14.3
Pipestone Pass	30 "	11	1N	7W	7200	2/2	22.7	5.0	2.8	1.5	3.9
MADISON RIVER											
Aster Creek*	2 Wyo.		44.2N	110.6W	7700	1/16	74.0	23.4	21.2	9.1	14.7
Lewis L.Divide*	8 "		44.2N	110.7W	7900	1/16	92.0	32.9	28.8	13.5	21.5
Big Springs*	3 Ida.	34	14N	44E	6500	1/28	52.0	15.0	13.6	7.0	11.4
W.Yellowstone	16 Mont.	34	13S	5E	6700	1/30	36.4	9.4	8.2	4.7	7.0
21-Mile*	"	1	11S	5E	7150	1/31	50.2	14.6	12.3	5.7	9.8
Hebgen Dam	"	22	11S	4E	6550	1/31	36.8	9.2	9.5	5.7	7.6
Valley View	Ida.	7	15N	44E	6500	1/29	43.0	11.2	--	--	7.6
GALLATIN RIVER											
Mystic Lake #1	Mont.	31	3S	7E	6600	1/31	20.5	5.4	6.6	3.4	5.1
Mystic Lake #2	"	31	3S	7E	6600	1/31	18.0	4.0	5.9	2.6	4.3
21-Mile	"	1	11S	5E	7120	1/31	50.2	14.6	12.3	5.7	9.8
YELLOWSTONE RIVER											
Lupine Creek	40 Wyo.		44.9N	110.6W	7300	2/4	32.5	8.0	6.7	--	5.4
Blacktail Deer Cr.	41 "		44.9N	110.6W	7500	2/4	35.9	8.3	8.1	--	6.6
MISSOURI RIVER**											
Chessman Res.	6 Mont.	2	8N	5W	6200	2/1	19.1	5.0	2.6	1.4	2.8
Lower Rimini	41 "	13	8N	6W	6250	1/30	29.8	7.3	4.0	2.7	4.3
Middle Rimini	42 "	13	8N	6W	6800	1/30	39.6	10.9	6.5	3.6	6.2
Upper Rimini	43 "	19	8N	5W	8000	1/31	44.6	13.5	9.3	5.0	7.9

*On Adjacent Drainage

**Between Helena and Great Falls

MISSOURI-ARKANSAS RIVERS SNOW SURVEYS, February 1, 1947

DRAINAGE BASIN and SNOW COURSE	LOCATION				SNOW COURSE MEASUREMENTS							
	No. and State	Sec.	Twp.	Range	Elev.	Rate of Survey	Snow Depth (Inches)	Water Content (Inches)			Years of Record	Past Record Av. Water Content (Inches)
								1947	1946	1945		
MARIAS RIVER Marias Pass	20 Mont.		48.3N	113.4W	MISSOURI RIVER 5250	1/31	6.33	In. 20.2	In. 12.8	In. 6.9	10	10.5
SHOSHONE RIVER Sylvan Pass	32 Wyo.	12	52N	110W	7100	1/30	37.0	9.4	10.9	7.6	5	10.3
Brooks Lake #3*	50 "	23	44N	110W	9200	2/3	68.6	18.7	16.2	8.9	8	13.1
BIG HORN RIVER Togwotee Pass	12 Wyo.	29	44N	110W	9600	2/2	76.0	23.2	19.7	13.4	10	17.8
Sawmill Glade	45 "	3	31N	101W	8500	1/31	13.3	3.5	3.1	3.2	7	3.9
Blue Ridge	46 "	23	31N	101W	9500	1/31	31.7	8.2	6.9	2.6	7	6.2
South Pass	47 "	13	30N	101W	9000	1/31	40.8	9.8	10.0	3.6	7	7.4
Sheridan Cr. R. S.	49 "	3	42N	109W	7500	2/3	25.2	5.4	3.2	3.5	7	4.6
Brooks Lake #3	50 "	23	44N	110W	9200	2/3	68.6	18.7	16.2	8.9	8	13.1
St. Lawrence R. S.	51 "	26	1N	4W	9000	2/5	25.9	5.7	--	--	5	5.2
Mosquito Park R S.	52 "	23	2S	3W	9500	2/3	20.3	4.0	--	--	5	5.6
DuNoir	53 "	27	42N	108W	8750	2/3	49.4	7.3	5.5	4.1	7	6.0
T-Cross Ranch	54 "	1	43N	107W	8000	2/1	26.0	5.0	3.5	2.2	7	4.6
SWEETWATER RIVER Grannier Meadows	29 Wyo.	19	30N	100W	9000	1/30	39.3	10.3	9.8	4.2	7	7.6
South Pass*	47 "	13	30N	101W	9000	1/31	40.8	9.8	10.0	3.5	7	7.4
CHEYENNE RIVER Upper Spearfish	1 S. Dak.	21	3N	1E	6500	1/31	16.3	2.7	2.3	4.3	4	3.5
Upper Castle	2 "	24	2N	1E	6800	1/31	19.3	3.1	2.3	3.1	3	2.8
Deerfield	3 "	23	1N	2E	6000	1/30	13.0	2.4	1.2	1.9	4	2.1

*On Adjacent Drainage

MISSOURI-ARKANSAS RIVERS SNOW SURVEYS, February 1, 1947

DRAINAGE BASIN and SNOW COURSE	LOCATION				SNOW COURSE MEASUREMENTS						
	No. and State	Sec.	Twp.	Range	Elev.	Date of Survey	Snow Depth (Inches)	Water Content (Inches)			Past Record Av. Water Content (Inches)
								1947	1946	1945	
MISSOURI RIVER											
NORTH PLATTE RIVER								In.	In.	In.	
Cameron Pass	1 Colo.	2	6N	76W	10300	2/1	40.2	14.2	12.4	9.7	9.9
Park View	7 "	24	5N	78W	9200	2/3	29.8	6.8	9.1	3.0	5.1
Columbine Lodge	8 "	21	5N	82W	9300	2/1	49.0	10.9	16.2	10.8	12.6
Willow Cr. Pass*	62 "	1	4N	78W	9500	2/3	38.1	8.0	11.4	3.9	6.8
Bottle Creek	7 Wyo.	24	14N	85W	8200	2/3	30.0	7.3	6.9	5.8	6.7
Webber Spring	8 "	27	14N	85W	9000	2/3	42.1	10.8	9.4	7.4	8.8
Old Battle	9 "	29	14N	85W	9800	2/3	64.4	21.2	18.7	14.0	16.9
N. French Creek	37 "	27	16N	80W	10200	1/30	55.2	13.4	19.9	13.4	15.4
N. Barrett Creek #2	38 "	30	16N	80W	9400	1/30	44.5	9.8	11.2	7.9	10.7
Ryan Park #2	39 "	34	16N	81W	8400	1/28	27.3	5.1	4.7	4.4	6.1
LARAMIE RIVER											
Brooklyn Lake	3 Wyo.	11	16N	79W	10200	1/31	42.3	12.2	13.9	9.4	11.8
Fox Park	11 "	21	13N	78W	9200	1/30	17.1	3.9	6.1	4.7	4.9
Pole Mtn. #2*	34 "	35	15N	72W	8700	1/31	14.5	2.6	1.2	2.7	2.6
Libby Lodge #2	35 "	29	16N	78W	8700	1/31	25.7	5.2	6.3	3.7	4.8
Hairpin Turn #2	36 "	24	16N	79W	9500	1/31	28.2	6.2	6.7	4.1	5.7
W. Port. G-P Tun.	4 Colo.	7	8N	75W	8600	2/1	22.2	5.1	5.5	5.5	4.9
Deadman Hill*	50 "	26	10N	75W	10200	1/30	39.3	9.7	9.1	6.5	7.3
Roach	88 "	5	10N	77W	9800	2/2	50.3	13.5	11.8	8.5	9.4
CROW CREEK											
Pole Mtn. #2	34 Wyo.	35	15N	72W	8700	1/31	14.5	2.6	1.2	2.7	2.6
POULRE RIVER											
Cameron Pass	1 Colo.	2	6N	76W	10300	2/1	40.2	14.2	12.4	9.7	9.9
Chambers Lake	2 "	6	7N	75W	9000	2/1	14.6	4.0	4.8	4.5	4.0
Big South	3 "	33	8N	75W	8600	2/1	5.4	1.2	1.1	1.8	1.1
Deadman Hill	50 "	26	10N	75W	10200	1/30	39.3	9.7	9.1	6.5	7.3
Lake Irene*	65 "	8	5N	75W	10600	2/2	54.7	13.6	13.6	6.7	11.9
Hour Glass Lake	68 "	18	7N	73W	9500	2/1	19.5	4.6	3.7	3.7	3.9

*On Adjacent Drainage

MISSOURI-ARKANSAS RIVERS SNOW SURVEYS, February 1, 1947

DRAINAGE BASIN and SNOW COURSE	LOCATION				SNOW COURSE MEASUREMENTS								
	No. and State	Sec.	Twp.	Range	Elev.	Date of Survey	Snow Depth (Inches)	Water Content (Inches)			Years of Record	Past Record Av. Water Content (Inches)	
								1947	1946	1945			
BIG THOMPSON RIVER	MISSOURI RIVER												
Lake Irene*	65 Colo.	8	5N	75W	10600	2/2	54.7	In. 13.6	In. 13.6	In. 6.7	10	11.9	
Hidden Valley #2	95 "	23	5N	74W	9550	1/31	38.4	7.8	6.2	4.1	8	5.6	
ST. VRAIN RIVER	41 Colo.	24	3N	74W	10000	1/31	35.7	8.4	7.0	5.2	11	6.3	
BOULDER CREEK	5 Colo.	2	2S	74W	9400	2/3	9.7	2.8	2.3	3.4	10	2.2	
E.Port.Moffat T. University Camp #2	60 "	28	1N	73W	10300	1/28	37.0	10.7	16.6	8.2	9	9.9	
CLEAR CREEK	61 Colo.	27	4S	76W	10100	2/1	33.0	7.6	10.7	5.4	8	6.4	
Loveland Pass #2 Grizzly Peak*	97 "	2	5S	76W	11250	1/31	39.5	9.9	11.8	5.6	6	9.2	
SOUTH PLATTE RIVER	(Above Denver)												
Hoosier Pass	14 Colo.	13	8S	78W	11400	1/31	28.2	4.9	7.6	2.4	9	5.0	
Fairplay	15 "	33	9S	77W	10000	1/31	11.5	1.6	0.5	0.6	9	0.7	
Jefferson Cr.#2	83 "	14	7S	76W	10100	1/31	30.9	4.7	6.8	1.8	8	3.9	
ARKANSAS RIVER	ARKANSAS RIVER												
Tennessee Pass	19 Colo.	21	8S	80W	10200	2/3	29.4	5.2	7.2	3.1	12	4.6	
Twin Lakes T.	21 "	22	11S	82W	10500	2/1	34.2	7.4	7.1	4.1	10	6.0	
Marshall Cr.*	42 "	24	48N	6E	10800	2/2	27.5	5.2	5.3	7.0	12	6.6	
Poncha Cr.	43 "	19	48N	7E	10500	2/2	17.3	4.3	4.7	6.1	12	6.2	
Whiskey Cr.#2	72 "		37.2N	105.2W	10300	1/31	15.2	3.3	2.1	3.1	8	3.4	
La Veta Pass#2*	74 "	22	28S	70W	9300	2/4	26.0	7.0	3.3	5.7	8	4.6	
Four Mile Park #2	78 "	23	11S	81W	9700	2/5	17.8	2.5	4.7	0.0	8	2.3	
Fremont Pass #2*	79 "	2	8S	79W	11400	1/30	43.5	9.0	11.4	5.2	12	8.1	
Monarch Pass	92 "	16	49N	6E	10500	1/30	35.6	9.4	10.8	8.2	7	9.6	

*On Adjacent Inrriage

The following organizations cooperate in the snow surveys and irrigation water supply forecasts for the Colorado, Missouri-Arkansas and Rio Grande watersheds by furnishing funds or services.

STATE

Colorado State Engineer
Wyoming State Engineer
Utah State Engineer
New Mexico State Engineer
Montana State Engineer
Nebraska State Engineer
Colorado Experiment Station
Colorado Extension Service
Montana Experiment Station
Utah Experiment Station

FEDERAL

Department of Agriculture
Forest Service
Soil Conservation Service
Department of Interior
Bureau of Reclamation
Indian Service
Geological Survey
National Park Service
Department of Commerce
Weather Bureau
War Department
Army Engineer Corps

PUBLIC UTILITIES

Colorado Public Service Company
Western Colorado Power Company
Montana Power Company
Denver and Rio Grande Western R. R. Company

MUNICIPALITIES

City of Bozeman
City of Denver
City of Boulder

WATER USERS ORGANIZATIONS

Poudre Valley Water Users' Association
Arkansas Valley Ditch Association
Colorado River Water Conservation District

IRRIGATION PROJECTS

Farmers Reservoir and Irrigation Company
San Luis Valley Irrigation District
Santa Maria Reservoir Company
Costilla Land Company
Uncompahgre Valley Water Users' Association
Wyoming Development Company
Goshen Irrigation District
Kendrick Project
Pathfinder Irrigation District
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San Carlos Irrigation and Drainage District
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Many other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

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